WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005NY73B

Title: Nutrient balances -- involving farmers and their advisors in addressing nutrient excesses for improved water quality for Upper Susquehanna Watershed farms

Project Type: Research

Focus Categories: Nutrients, Sediments

Keywords: Nutrients, sediment, mass balances, farm profitability

Start Date: 03/01/2005

End Date: 02/28/2006

Federal Funds: $0

Non-Federal Matching Funds: $24,052

Congressional Districts: 20-26, 29

Principal Investigator:
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Abstract

At present, the Chesapeake Bay does not meet federal water quality standards. The Chesapeake Bay Program defines the water quality conditions necessary to protect aquatic living resources and assigns load reductions for nitrogen (N), phosphorus (P), and sediment needed from each tributary basin to achieve the necessary water quality. New York State is developing a Tributary Strategy to avoid additional environmental regulations in the Chesapeake Bay Watershed that will occur unless contributing states substantially reduce sediment and nutrient loads before 2011. The Susquehanna River contributes 50% of the fresh water to the Bay (http://www.u-s-c.org/html/CBP.htm). Typically more nutrients come onto farms as purchased feedstuffs and fertilizer than leave the farm as animal products and crops. An analysis of the nutrient flows onto and off of the farm, a mass nutrient balance (MNB), will be used to target farm practices which could be more efficient, thereby, increasing farm profitability and decreasing nutrient losses. In this project we will work with the Upper Susquehanna Coalition personnel to generate a 6-farm dataset of nutrient balances (N, P and K inputs and outputs). Objectives are: 1) develop a user-friendly software tool that allows producers and planners to assess and track annual changes in whole farm nutrient balances; 2) implement the software on 6 Upper Susquehanna Watershed farms; 3) investigate the

relationship between whole farm nutrient (im)balance, farm business characteristics, location, crop rotation, and animal density; and 4) communicate the findings to producers and planners while stimulating discussion on how to deal with nutrient excesses.